REMARKS/ARGUMENTS

Applicants amended claim 18 to depend from claim 16.

Applicants amended claim 33 to depend from claim 32 to overcome the Examiner objection noted on pg. 2 of the Third Office Action.

The Examiner rejected claims 1-4, 6, 16, and 18-34 as anticipated (35 U.S.C §102(b)) by Wang-Knop (U.S. Patent No. 6,571,261). Applicants traverse for the following reasons.

Applicants submit that the basis for the rejection should not be 35 U.S.C. §102(b) and should instead be rejected under Section 102(e) because Wang-Knop was filed prior to the filing date of the present application, but issued after the filing date of the present application.

Claim 1 recites a storage area network (SAN), comprising a plurality of storage devices; a plurality of digital data processors, each having a file system that effects access to one or more of the storage devices coupled to the SAN; and a process in communication with the digital data processors, wherein the process responds to a notification from one of the digital data processors requesting extension of the file system at the requesting digital data processor in accordance with a hierarchically defined file extension policy, wherein the hierarchically defined extension policy indicates a hierarchical arrangement of groups of attributes for configuring the extension of the file system, and wherein the process adds storage to the file system of the requesting digital processor to implement the request for the extension of the file system according to the attributes in the at least one group of attributes associated with the requesting digital data processor.

The Examiner cited col. 5, line 61 to col. 6, line 10 and col. 4, lines 30-49 of Wang-Knop as disclosing the requirements of claim 1. (Third Office Action, pg. 3) Applicants traverse.

The cited cols. 5-6 discusses combining fragmented blocks into one full block to free up the full blocks for allocation. The on-line defragmentation utility allows the user to increase available full blocks without disrupting disk allocation and other file system activities. The file systems are configured with indirect blocks and directory file blocks smaller than data blocks. Given a disk block number and allocation map , the number of sublocks in use is determined.

The cited col. 4 mentions the file structure of the data and metadata including a directory that maps file name to files; file metadata including inodes having information about files, including the location of the file data on disk, and indirect blocks that contain information about the files; an allocation map recording which disk blocks are in use; and a superblock having overall information about the file structure.

Nowhere do the cited cols. 5-6 disclose or mention the claim requirement of extending a file system in a SAN with a hierarchically defined file extension policy indicating a hierarchical arrangement of groups of attributes for configuring the extension of the file system. First off, the cited cols. 5-6 discuss defragmenting data blocks, not extending a file extension as claimed. There is no mention in the cited Wang-Knop of extending a file system using a hierarchically defined extension policy. Further, nowhere is there any disclosure or mention of using a hierarchical arrangement of groups of attributes for configuring the extension of the file system. Instead, the cited cols. 5-6 discuss an online defragmentation utility.

Further, nowhere does the cited col. 4 disclose or mention the claim requirements of extending a file system in a SAN with a hierarchically defined file extension policy indicating a hierarchical arrangement of groups of attributes for configuring the extension of the file system. Instead, the cited col. 4 mentions file system metadata, such as a directory and file metadata, such as inodes, indirect blocks, allocation map, superblocks. having information on files in the file system. However, there is no disclosure of the claim requirements of using a hierarchical arrangement of groups of attributes for configuring the extension of the file system as claimed.

Further, nowhere do the cited cols. 4 and 5-6 disclose the claim requirement that storage is added for a request for the extension of the file system according to the attributes in the at least one group of attributes associated with the requesting digital data processor. Instead, the cited col. 4 discusses file structure metadata and cols. 5-6 discuss an on-line defragmentation utility.

Accordingly, claim 1 is patentable over the cited art because the cited Lagueux does not disclose all the claim requirements.

Claims 2-4 and 6 are patentable over the cited art because they depend from claim 1. Moreover, the following dependent claims provide additional grounds of patentability over the cited art.

Claim 2 depends from claim 1 and further requires that the groups of attributes include a first group at a first hierarchical level and a second group at a second hierarchical level, wherein the first hierarchical level is hierarchically above the second hierarchical level, and wherein the requesting digital data processor is in the first and second groups, and wherein the first group includes at least one digital data processor other than the requesting digital data processor.

The Examiner cited col. 6, line 51 to col. 7, line 10 of Wang-Knop as disclosing the requirements of claim 2. (Third Office Action, pgs. 3-4) Applicants traverse.

The cited cols. 6-7 mentions how the defragmentation engine finds fragments in blocks not almost full to move to another block that has a hole for the fragment. The engine steps through valid inodes and finds each file's fragments and a check is made to see if a current fragment belongs to a populated disk block, a plate or a done block. If so, then a check is made to see if the current fragment belongs to an almost full block. If the fragment belongs to an almost full block, then the block is moved to the done list. If the block to which the fragment belongs is not almost full, then an attempt is made to find a suitable hole, same size as the fragment or larger in the plate list for the current fragment. If a suitable hole is found, the utility migrates the fragment to the hole and frees the previously occupied sublocks.

Nowhere do the cited cols. 6-7 anywhere disclose a hierarchical grouping of attributes to extend a file system as claimed. Further, nowhere do the cited cols. 6-7 disclose the additional requirements of claim 2 concerning how the digital data processors may be associated with different groups of attributes at hierarchical levels used to configure file system extensions.

Although the cited cols. 6-7 discuss how to find holes in blocks for fragments to move as part of the defragmentation process, there is no disclosure of the claim requirements concerning a hierarchical grouping of attributes to extend a file system.

Accordingly, claim 2 provides additional grounds of patentability over the cited art because the cited art does not disclose the additional requirements of this claim.

Claim 3 depends from claim 1 and further requires that the first group is associated with a first set of file extension configuration attributes defining a default policy for digital data processors associated with that group and wherein the second group is associated with a second set of one or more file extension configuration attributes, wherein a definition of an attribute in the second set overrides a definition for that attribute in the first set, wherein the configuration attributes of the second set, taken in conjunction with non-overridden configuration attributes of the first set, define a policy for the second group. The process configures the file extension on behalf of the requesting digital data processor using the attributes defined for the second group.

The Examiner cited col. 4, lines 30-49 and col. 5, liens 15-39 of Wang-Knop as disclosing the requirements of claim 3. (Third Office Action, pg. 4) Applicants traverse.

As discussed, the cited col. 4 discusses file structure metadata, such as a directory, file metadata including inodes and indirect maps, superblocks, etc. The cited col. 5 discusses how nodes may access the same metadata, they may read from and write to different areas of a file from a group of documents only if they present an appropriate lock on the sections to which they

read or write. The metadata includes the file size, the file access and modification times. A metadata node or metadata node is used for managing file metadata for parallel read and write in a shared disk environment.

Although the cited cols. 4-5 discuss file structure metadata for files and how the metadata may be accessed in a shared environment, nowhere do the cited cols. 4 and 5 anywhere disclose the claim requirements concerning a hierarchical file extension policy including extension including a first group of configuration attributes defining a default policy for digital data processors associated with that group and a second group having a second set of one or more file extension configuration attributes. Nowhere do the cited cols. 4-5 anywhere disclose or mention the claimed details of a hierarchical file extension policy providing attributes used to configure a requested file extension for a digital data processor. Instead, the cited cols. 4-5 discuss file metadata and how to access that shared file metadata using locks in shared environment.

Accordingly, claim 3 provides additional grounds of patentability over the cited art because the cited art does not disclose the additional requirements of this claim.

Claim 4 depends from claim 2 and further requires that the attributes are a member of the set of attributes comprising a utilization threshold above which file system extension is requested, one or more storage devices accessible for file system extension, a range of storage capacities for accessible storage devices to be assigned for file system extension, maximum file system size, a flag indicating whether file system utilization is monitored, and an alert interval for notifying a SAN administrator of a file system utilization exceeding a threshold since a previous notification.

The Examiner cited the above discussed cols. 4 and 5 that concern file metadata and how to access the file metadata in a shared environment. Nowhere do the cited cols. 4 and 5 disclose the specific claimed attributes used to configure storage added to extend a file system, where the attributes have a hierarchical arrangement. Instead, the cited col. 4 discusses metadata on files and a file structure and col. 5 discusses how to manage access to that file metadata.

Accordingly, claim 4 provides additional grounds of patentability over the cited art because the cited art does not disclose the additional requirements of this claim.

Claim 16 includes the requirements of claim 1 in a method form. The Examiner cited the same sections of Wang-Knop cited against claim 1 (Third Office Action, pg. 5). Applicants submit that claim 16 is patentable over the cited art for the reasons discussed with respect to claim 1.

Claim 18 includes the requirements of claim 4 in method form and thus provides additional grounds of patentability over the cited art for the reasons discussed above with respect to claim 4.

Claims 19 and 20, which depend from claim 16, provide further details on the hierarchical arrangement of groups and thus provide further grounds of patentability over the cited Wang-Knop, which does not disclose a hierarchical file extension policy.

Claim 21 depends from claim 16 and includes the requirements of claim 2 in method form. Claim 21 is patentable over the cited art for the reasons discussed with respect to claim 2.

Claims 22, 26, and 32 depend from claims 1, 16, and 29 and further require that digital data processors associated with one group of attributes are also associated with all groups of attributes at hierarchically higher levels than the group with which the digital data processor is associated.

The Examiner cited col. 4, lines 30-49 of Wang-Knop as disclosing the additional requirements of these claims. (Third Office Action, pg. 7) As discussed, the cited col. 4 discusses metadata on files, such as a directory, file metadata, and a superblock having overall information about the file structure. As noted, nowhere does the above discussed col. 4 disclose a hierarchically defined file extension policy of a hierarchical arrangement of groups. Further, nowhere does the cited col. 4 disclose that digital data processors associated with one group of attributes are also associated with all groups of attributes at hierarchically higher levels. There is no disclosure in the cited col. 4 of associating processors with different groups of file extension policy attributes arranged hierarchically. In fact, there is no discussion in the cited Wang-Knop of extending a file system using hierarchically defined file extension policy as claimed.

Accordingly, claims 22, 26, and 32 provide additional grounds of patentability over the cited art in addition to being patentable over the cited art for depending from claims 1, 16, and 29, which are patentable over the cited art for the reasons discussed.

Claims 23, 27, and 33 depend from claims 1, 16, and 29 and further require that the attributes the process uses to configure the file extension for the requesting digital processor include attributes in the at least one group associated with the requesting digital processor, wherein a definition of one attribute at a lower hierarchical level is used over a definition of the attribute at one higher hierarchical levels.

The Examiner cited the above discussed cols. 4 and 5 of Wang-Knop that concern file metadata and how to access the file metadata in a shared environment. (Third Office Action, pg. 7)

Although the cited cols. 4 and 5 discuss metadata on files and how to access such metadata in as shared environment, nowhere do the cited cols. 4-5 anywhere disclose that the attributes used to configure the file extension include attributes in at least one group associated with the requesting digital process and that a definition of one attribute at a lower hierarchical level is used over a definition of the attribute at one higher hierarchical levels.

Accordingly, claims 23, 27, and 33 are patentable over the cited art because they depend from base claims 1, 16, and 29, which are patentable over the cited art for the reasons discussed, and because their additional requirements provide further grounds of patentability over the cited art.

Claims 24, 28, and 34 depend from claims 1, 16, and 29 and further require that at least one group comprises a host group policy defining attributes for configuring an extension to all file systems within each digital data processor associated with the host group policy, and wherein at least one group comprises a file system policy defining attributes for configuring a specified file system within each digital data processor associated with the file system policy.

The Examiner cited col. 4, lines 30-49 and col. 6, lines 35-50 of Wang-Knop. As discussed, the cited col. 4 discuss metadata on files. (Third Office Action, pg. 7) The cited col. 6 mentions rules to decide whether a disk block becomes a plate (a plate comprises a set of disk blocks that are chosen to be filled with fragments – see, Abstract). The fragmentation engine maintains a plate list of disk blocks being filled and each plate also has information about holes in the corresponding disk blocks and a done list of blocks that have been considered done and should not be reconsidered.

The cited cols. 4 and 6 concern information about files and information about plates to be filled with data during the defragmentation process. Nowhere in these cited sections of Wang-Knop is there any disclosure or mention of a host group policy defining attributes for configuring an extension and that one group comprises a file system policy defining attributes for configuring a specified file system within each digital data processor associated with the file system policy. There is no mention in the cited Wang-Knop of the claimed file extension configuration policies.

Accordingly, Applicants submit that claims 24, 28, and 34 are patentable over the cited art because they depend from base claims 1, 16, and 29, which are patentable over the cited art

for the reasons discussed, and because their additional requirements provide further grounds of patentability over the cited art.

Claim 25 depends from claim 21 and includes the requirements of claim 3. Applicants submit that claim 25 is patentable over the cited art for the reasons discussed with respect to claim 3.

Claims 29-31 include the requirements of claims 16, 18, 21 in computer readable format form and thus are patentable over the cited art for the reason discussed with respect to claims 16, 18, and 21.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-4, 6, 16, and 18-34 are patentable over the art of record. Applicants submit herewith the fee for the claim amendments. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0466.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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By: /David Victor/

David W. Victor
Registration No. 39,867

Please direct all correspondences to:

David Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: 310-553-7977
Fax: 310-556-7984